

Harrier F402 / 408 Engine Maintenance Mentoring System (MMS)

L-3 Communications / EER Systems

April 16, 2002

Harrier Engine (F402 / 408) Maintenance Mentoring System

Partners:

- NADEP Equipment Planning and Engineering Branch (6.3.1.5); L-3/EER Systems; Pratt & Whitney; Didactics; Task-Based Technologies

Location:

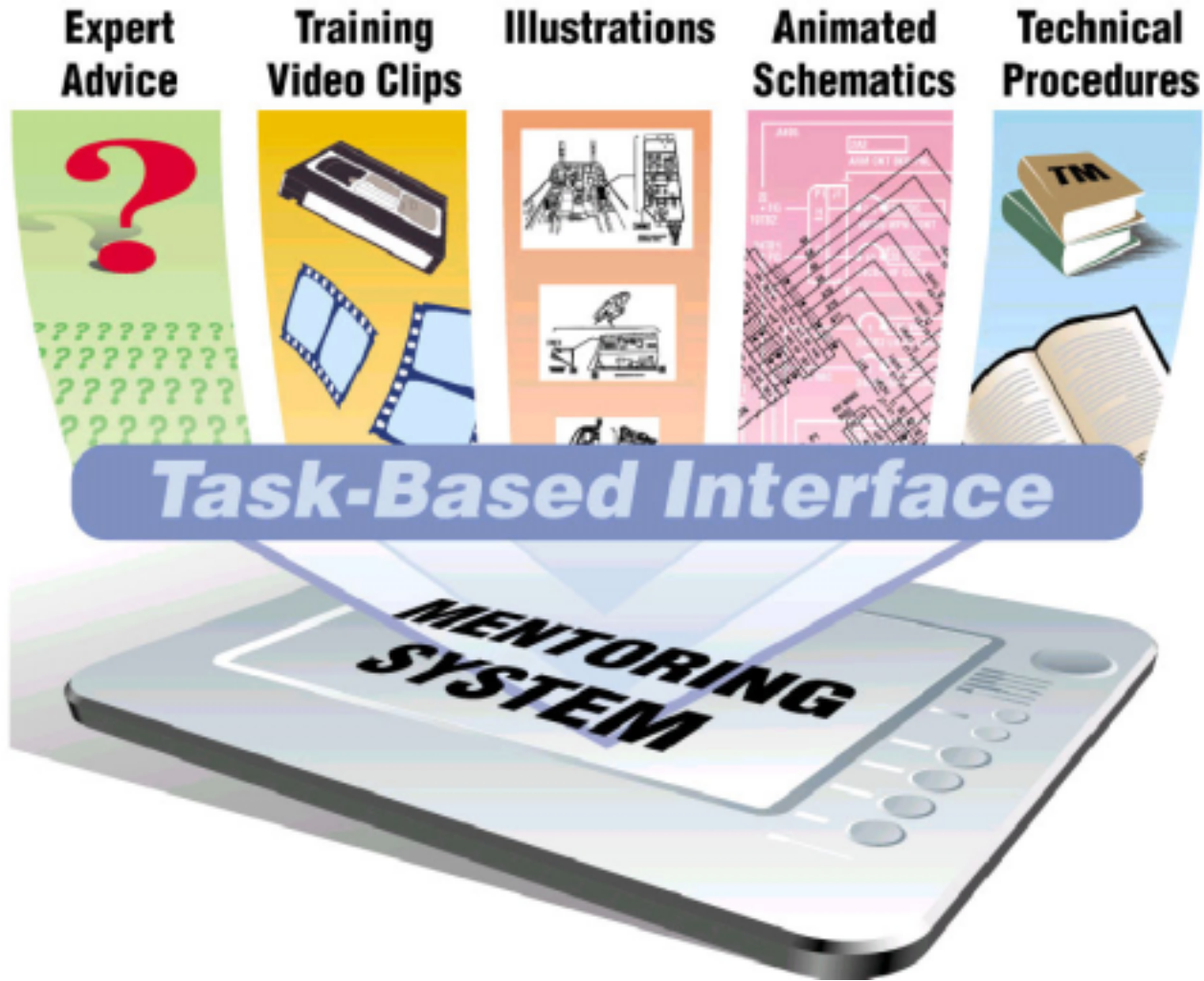
- Naval Aviation Depot Cherry Point, North Carolina

Objectives:

- Assist artisans by creating, installing and testing an Electronic Performance Support System (EPSS) for the F402 / 408 engine final assembly process
- Assist with ISO 9000 compliance requirements



Maintenance Mentoring



F402 / 408 Engine MMS Screen Capture

[Go Back](#) [Make a Note](#) [View IPB](#) [Site Map](#)

12(a6). Apply lubricating oil to four machine screw [11] using AP1 ([SPM, WP 006 00](#)).

[NEXT](#)

[MATERIALS REQUIRED](#)

[SUPPORT EQUIPMENT](#)

[TECHNICAL DIRECTIVES](#)

[TECH TIPS](#)

Figure 4

Before:

- Paper-based procedures
- Excessive cross referencing
- Manual logistics support
- Manual Configuration Management
- On-the-job training (OJT) provided by senior artisan mentors



After:

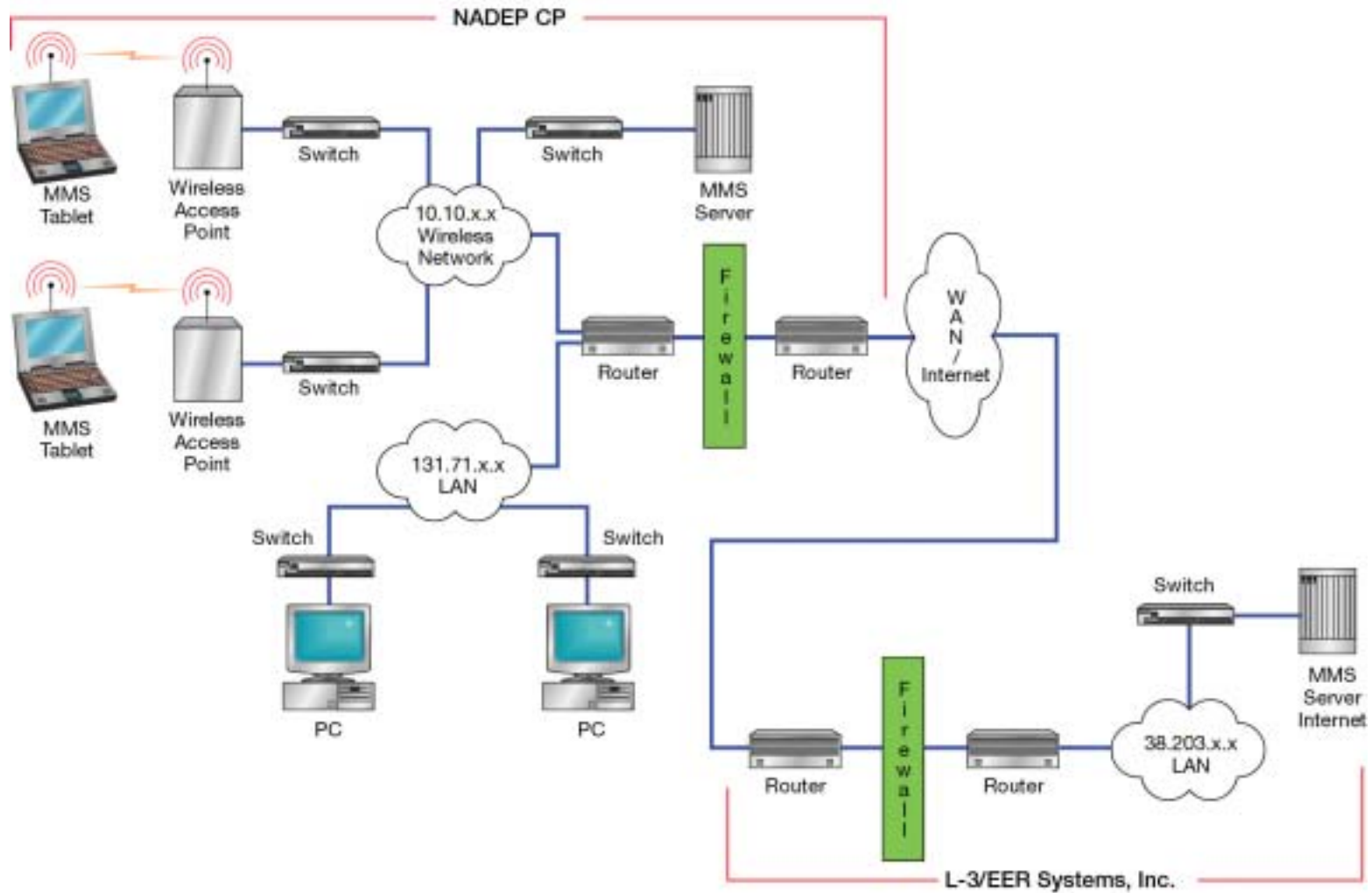
- Electronic Performance Support System
- Task-based data
- Direct real-time logistics interfaces
- Easier Configuration Management
- During-the-job training to supplement artisan knowledge



Road to Implementation

- Content converted to object-oriented database. (Complete)
- Create process model and server-client software. (Complete)
- Install wireless network and ruggedized tablet computers. (Complete)
- Train artisans.
- Test system (measure user acceptance, procedure accuracy, time to complete tasks).

Network Topology



MMS Benefits

- Increased accuracy
- Faster assembly process times
 - Past efforts demonstrated 30% or higher reductions in labor times
 - Reduced turnaround time for F402 / 408 engines
- Compliance with ISO documentation procedures / process improvements
 - All required information available to artisan at the point-of-work
 - “Make-a-Note” feature for continuous process improvement



Development Issues

- Islands of technology development
 - Partial wireless infrastructure
 - Various degrees of document digitization
- Some artisans resistant to new technology
 - Book-oriented paradigm for technical data
- Permissions process
 - Documentation
 - IT

Commercialization Outlook

■ Companies currently deploying EPSS technologies:

- Honeywell
- IBM
- Westinghouse
- Sears
- Intel
- Lockheed Martin

■ Cost reductions

- Reduce labor times to complete tasks
- Increased accuracy
 - The right fix the first time
 - Improved customer satisfaction

■ Workforce satisfaction

- Eliminate cross referencing for maintainers
- Reduce or eliminate paperwork
- Efficient feedback captures maintainer knowledge

